

sub 3  
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10. (Amended) The method of claim 1 in which the first and the second ribonucleotide sequences comprise at least 50 bases which correspond to or are complementary to the nucleotide sequence of the target gene.

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22. (2 x Amended) A method to inhibit expression of a target gene comprising:  
(a) providing an organism containing a target cell, wherein the target cell contains the target gene and the target cell is susceptible to RNA interference, and the target gene is expressed in the target cell;  
(b) contacting a ribonucleic acid (RNA) with the organism, wherein the RNA is comprised of a double-stranded structure with duplexed ribonucleic acid strands of at least 25 bases in length and those ribonucleic acid strands are each able to specifically hybridize to the target gene over the at least 25 bases; and  
(c) introducing the RNA into the target cell, thereby inhibiting expression of the target gene.

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28. (Amended) The method of claim 22 in which the duplexed ribonucleic acid strands are at least 50 bases in length and each of the ribonucleic acid strands is able to specifically hybridize to a deoxyribonucleic acid strand of the target gene over the at least 50 bases.

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32. (Amended) The method of claim 22 in which the organism is contacted with the RNA by feeding food containing the RNA to the organism.

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33. (Amended) The method of claim 32 in which the food comprises a genetically-engineered host transcribing the RNA.

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35. (Amended) The method of claim 34 in which the organism is a nematode and the expression construct is contained in a plant, and disease associated with nematode infection of the plant is thereby reduced.

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39. (2 x Amended) A kit comprising reagents for inhibiting expression of a target gene in a cell,

wherein said kit comprises (a) means for introduction of a ribonucleic acid (RNA) into the cell in an amount sufficient to inhibit expression of the target gene, and (b) the RNA;

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wherein the RNA comprises a double-stranded structure with a first ribonucleotide sequence comprising at least 25 bases which correspond to a nucleotide sequence of the target gene and a second ribonucleotide sequence comprising at least 25 bases which are complementary to the nucleotide sequence of the target gene, the first and the second ribonucleotide sequences stably anneal to each other to form the double-stranded structure, and the cell is susceptible to RNA interference.

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40. (Amended) A method to inhibit expression of a target gene in a cell of an invertebrate animal comprising introduction of a ribonucleic acid (RNA) into the cell in an amount sufficient to inhibit expression of the target gene, wherein the RNA comprises a double-stranded structure having a first ribonucleotide sequence comprising at least 25 bases which correspond to a nucleotide sequence of the target gene and a second ribonucleotide sequence comprising at least 25 bases which are complementary to the nucleotide sequence of the target gene, the first and the second ribonucleotide sequences stably anneal to each other to form the double-stranded structure, and the cell is susceptible to RNA interference.

41. (Amended) A method to inhibit expression of a target gene in a cell comprising introduction of a ribonucleic acid (RNA) into the cell in an amount sufficient to inhibit expression of the target gene, wherein the RNA is consisting essentially of a double-stranded structure with duplexed ribonucleic acid strands and one of the strands is able to specifically hybridize in the cell to an RNA transcript from the target gene, the first and the second ribonucleotide sequences stably anneal to each other to form the double-stranded structure, and the cell is susceptible to RNA interference.

42. (Amended) A method to inhibit expression of a target gene comprising:

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providing an organism which is a plant or an animal, wherein the target gene is expressed in the organism; introducing an expression construct into the organism to produce a transgenic organism, wherein the expression construct produces a ribonucleic acid (RNA) comprised of a double-stranded structure with duplexed ribonucleic acid strands and one of the strands is able to specifically hybridize with a transcript of the target gene, and the transgenic organism is susceptible to RNA interference; and producing the RNA in the transgenic organism in an amount sufficient to inhibit expression of the target gene.

Kindly enter the following new claims.

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43. (New) A method to inhibit expression of a target gene in a cell comprising introduction of a ribonucleic acid (RNA) into the cell in an amount sufficient to inhibit expression of the target gene, wherein the RNA comprises a double-stranded structure having a first ribonucleotide sequence comprising at least 25 bases which correspond to a nucleotide sequence of the target gene and a second ribonucleotide sequence comprising at least 25 bases which are complementary to the nucleotide sequence of the target gene, the first and the second ribonucleotide sequences stably anneal to each other, the RNA is not a ribozyme, and the cell is susceptible to RNA interference.

44. (New) A method to inhibit gene expression in a cell susceptible to interference by a double-stranded ribonucleic acid (dsRNA) comprising introduction of the dsRNA into the cell in an amount sufficient to inhibit gene expression, wherein the gene is comprised of first and second deoxyribonucleic acid (DNA) sequences which are complementary, the dsRNA is comprised of (i) a first ribonucleotide sequence comprising at least 25 bases which correspond to the first DNA sequence and (ii) a second ribonucleotide sequence comprising at least 25 bases which correspond to the second DNA sequence, the first and the second ribonucleotide sequences stably anneal to each other, the dsRNA is not a ribozyme.

45. (New) A method to inhibit expression of a gene in a cell comprising:

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- (a) selection of a transcribed sequence of the gene, wherein the gene is targeted for specific interference mediated by a double-stranded ribonucleic acid (dsRNA) and the cell is susceptible to inhibition of gene expression by the dsRNA;
  - (b) synthesis of the dsRNA which is comprised of first and second ribonucleotide sequences that hybridize to each other to produce a double-stranded structure, wherein the first ribonucleotide sequence is able to specifically hybridize to the transcribed sequence and the second ribonucleotide sequence is able to specifically hybridize to the transcribed sequence's complement, and the first and the second ribonucleotide sequences stably anneal to each other to form the double-stranded structure; and
  - (c) introduction of the dsRNA into the cell in an amount sufficient to specifically inhibit expression of the gene.

46. (New) A method to inhibit expression of a gene in an organism which is a plant or animal comprising:

- (a) selection of a transcribed sequence of the gene, wherein the gene is expressed in the organism and targeted for specific interference mediated by a double-stranded ribonucleic acid (dsRNA), and the organism is susceptible to inhibition of gene expression by the dsRNA;
- (b) synthesis of the dsRNA which is comprised of first and second ribonucleotide sequences that hybridize to each other to produce a double-stranded structure, wherein the first ribonucleotide sequence is able to specifically hybridize to the transcribed sequence and the second ribonucleotide sequence is able to specifically hybridize to the transcribed sequence's complement, and the first and the second ribonucleotide sequences stably anneal to each other to form the double-stranded structure; and
- (c) introduction of the dsRNA into the organism in an amount sufficient to specifically inhibit expression of the gene.